harman/kardon

DIGITAL SYNTHESIZED
QUARTZ-LOCKED
STEREO RECEIVER

hk795

owner's manual

SPECIFICATIONS

Congratulations on your purchase of the Harman Kardon hk795i Digital Synthesized Quartz-locked Stereo Receiver.

In order to appreciate the full performance of this sophisticated unit, please be sure to read this owner's manual and use your receiver only in accordance with its instructions. Keep it in a safe place for future reference.

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION: TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

ATTENTION: POUR PREVENIR LES CHOCS ELECTRIQUES NE PAS UTILISER CETTE FICHE POLARISEE AVEC UNE RALLONGE. UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.

AUDIO

Power Output, RMS (both channels driven into 8 Ohms, 20 – 20,000Hz)	: 70 watts per channel @ less than 0.08% THD
HCC (high instantaneous current capability)	: 50A
Power Bandwidth (at half rated output into 8 Ohms)	: 10Hz to 100,000Hz
Frequency Response (+0, −3dB)	: 0.2Hz to 150,000Hz
Signal-to-Noise Ratio, IHF-A WTD (reference 1W output)	
Phono	: 80dB
CD, Video/AUX	: 80dB
Tape	: 80dB
Input Sensitivity/Impedance	
Phono	: 2.2mV/47k Ohms and 125pF
CD, Video/AUX	: 135mV/22k Ohms
Tape	: 135mV/22k Ohms
Phono Overload, MM (1kHz)	: 250mV
Tone Control Characteristics	
Bass Turnover Frequency	: 200Hz/400Hz
Treble Turnover Frequency	: 2kHz/6kHz
Loudness Control (−40dB) at 50Hz/at 10kHz	: 10dB/3dB
Subsonic Filter	: 15Hz, 12dB/Octave

TUNER
FM Section

Usable Sensitivity (Mono)	: 10.8dBf (0.95μV-75 Ohms)
50dB Quieting Sensitivity (Mono)	: 14.6dBf (1.65μV-75 Ohms)
Signal-to-Noise Ratio (Stereo)	: 75dB
Alternate Channel Selectivity	: 70dB
Stereo Separation (1kHz, 65dBf, 100% modulation)	: 50dB
T.H.D. (1kHz, 65dBf)	
Mono	: 0.08%
Stereo	: 0.06%

AM Section

External Antenna Sensitivity	: 15μV/m
Alternate Channel Selectivity	: 45dB

GENERAL

Dimensions (W x H x D)	: 17-3/8" x 5-1/4" x 14-1/2" (443 x 134 x 368 mm)
Weight	: 24.3lbs (11kg)
Power Supply	: AC 120V, 60Hz
Power Consumption	: 240W, 330VA

All specifications and features subject to change without notice.

■ HCC (High-instantaneous Current Capability)

Recent studies have shown that while reproducing dynamic music signals the instantaneous impedances of nearly all loud-speakers drop to less than one third of the nominal ratings. These low instantaneous impedances typically require 3 to 6 times more current than an 8 Ohm resistive load. Reduced dynamic range and increased distortion will result if the amplifier cannot provide these higher currents. For this reason, the hk795i was designed to provide 50 amperes of instantaneous current.

■ Ultrawide Bandwidth

The bandwidth of this unit is exceptionally wide and independent of negative feedback. This improves transient accuracy and phase linearity.

■ Low Negative Feedback

This unit has been designed to have low distortion and wide bandwidth without high negative feedback. This further improves its dynamic accuracy.

■ Discrete Component Circuitry

In order to achieve the above goals, all discrete electronic circuitry has been employed. All available integrated circuits could not provide this high level of performance.

■ Active/Passive Phono Section

Unique circuitry provides precise passive RIAA equalization (without negative feedback). Then the same low level of negative feedback is applied at all frequencies from 20Hz—20kHz, resulting in improved transient accuracy.

■ Sophisticated Electronic Protection

Harman Kardon engineers developed a unique protection system that permits high instantaneous current to be driven into speaker systems but protects the amplifier from short-circuited or damaged speakers and wires. This protection system in no way limits amplifier output voltage or current during music reproduction, and therefore has no negative effect on sound quality.

■ Digital Synthesized Quartz-locked Tuning

Quartz-locked tuning accuracy eliminates drifting and mistuning, thereby guarantying optimum sound quality. Eight AM and eight FM stations can be simultaneously stored in the memory. They will remain for one week even if there is a loss of power.

■ Constructed for Audio Purity

The internal wiring, layout and materials have been chosen to minimize noise, hum and interaction of the various circuits.

■ Bass and Treble Turnover Selectors

This feature alters the range of adjustment provided by the bass and treble controls. The user can more precisely contour the tone controls to match the speaker systems and room acoustics.

Always Use at 120V AC

This unit is designed for operation with 120V AC. Connect only to domestic AC outlets. Never connect the unit to an outlet supplying a higher voltage. This may create a fire hazard.

Handle the Power Cord Gently

- Do not disconnect the plug from the AC outlet by pulling the cord; always pull the plug itself. Pulling the cord may break the wire.
- If you do not intend to use your unit for any considerable length of time, disconnect the plug from the AC outlet.
- Do not place furniture or other heavy objects on the cord, and avoid dropping heavy objects on it. Also do not make a knot in the power cord. Not only may the cord be damaged, it can also cause a short circuit and a consequent fire hazard.

Place of Installation

Place your unit on a firm and level surface. Avoid installing your unit under the following conditions:

- ▶ Moist or humid places.
- ▶ Places exposed to direct sunlight or close to heating equipment.
- ▶ Extremely cold locations such as those in the direct draft from an air conditioner.
- ▶ Places subject to excessive vibration or dust.
- ▶ Poorly ventilated places.

Do not cover the ventilation slots on the top of the unit. This will cause the temperature inside the unit to rise, which can eventually effect the reliability of your unit.

Moving the Unit

Before moving the unit, be sure to unplug the power cord from the AC outlet and disconnect the interconnection cords to other units.

Do Not Open the Cabinet

To prevent fire or shock hazard, do not tamper with internal components for inspection or maintenance. Harman Kardon does not guarantee against performance degradation resulting from any modification.

If water, a hairpin or wire accidentally enters the unit, immediately unplug the power cord from the AC outlet to prevent shock and consult an authorized Harman Kardon service station. If you use the unit under this condition, it may cause a fire or shock hazard.

Cleaning

When the unit gets dirty, wipe it with a soft dry cloth. If necessary, wipe it with a soft cloth dampened with mild soapy water and then wipe with a dry cloth.

Never use benzine, thinner, alcohol or other volatile agent, and avoid spraying an insecticide near the unit.

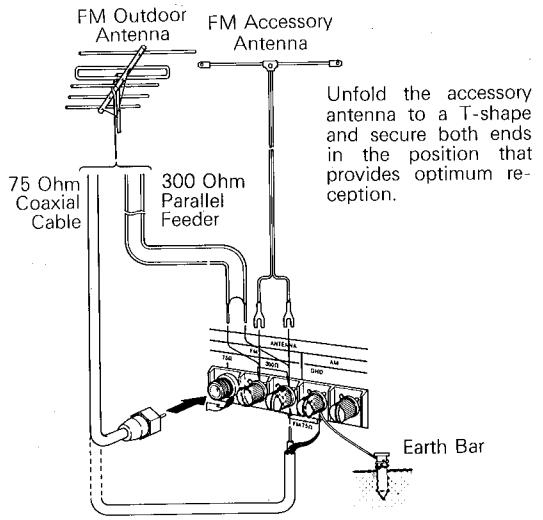
ANTENNAS

FM Antenna

If experiencing poor FM reception while using the accessory antenna, the use of an outdoor antenna exclusively for FM reception is likely to improve FM reception.

The connecting wire between the antenna and the antenna input terminal is called a feeder. Most feeders are 300 Ohm parallel or 75 Ohm coaxial cables. We recommend type 3C-2V or 5C-2V 75 Ohm coaxial cable to be used with this unit to enable it to perform to its fullest capacity. The coaxial cable has a stronger resistance against loss and interference compared to a parallel feeder.

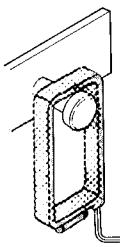
If there is a lot of noise while receiving an FM broadcast, we recommend that you make a ground connection. Connect one end of a thick wire to the antenna "GND" terminal and wind the other end around an earth bar or earth plate and drive it into the ground.


FM Outdoor Antenna
FM Accessory Antenna
Unfold the accessory antenna to a T-shape and secure both ends in the position that provides optimum reception.
75 Ohm Coaxial Cable
300 Ohm Parallel Feeder
Earth Bar

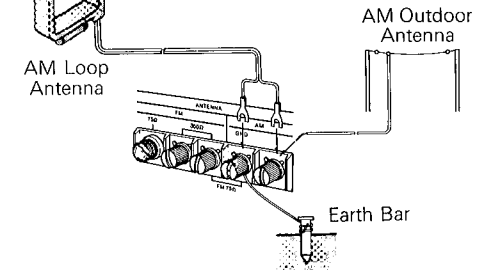
CAUTION: Never make a connection to a gas pipe because it can cause fire hazard.

AM Antenna

The AM loop antenna attached to this unit allows sufficient reception, except in an area where AM signals are weak. In a fringe area or inside a concrete building where the reception is weak and the sound quality is poor, an outdoor AM antenna is likely to improve reception.



Place the AM loop antenna as far away from this unit as possible, e.g. hang it on wall, without touching a metal object. You may also install the AM loop antenna by fitting it onto the antenna holder on the rear panel. To remove the AM loop antenna from the unit, simply pull it out of the holder.



Connecting Other Components

Carefully connect the plugs to the left and right channel jacks. Push the plugs in all the way. Poor setting of the plugs tends to cause hum or intermittent sound and may damage the speakers.

NOTE: While you are connecting this unit to the rest of your high fidelity system, please unplug the power cord, disconnecting not only this unit but all the components, from the AC outlet.

Do not interwind the connection wires with the power cord. If interwound, the sound quality may be degraded.

AC Convenience Receptacles

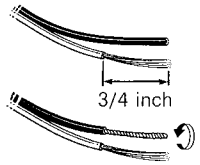
This unit is provided with three AC convenience receptacles on the rear panel for supplying power to a turntable, tape deck or other low power component. The "SWITCHED" receptacles have a combined power capacity of 180 watts. The "UNSWITCHED" receptacle has a power capacity of 180 watts. Check the component's owner's manual to find its power requirement.

SWITCHED: The power to this receptacle is turned on and off by this unit's power switch.
UNSWITCHED: The power to this receptacle is independent of this unit's power switch.

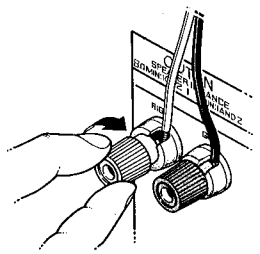
Connecting Speakers

Connect the speaker wires carefully to the speaker terminals on the rear panel so as not to mistake the left and the right channels or reverse the speaker polarities (+ and −).

Use sufficiently thick wire (18 gauge for short lengths, 16 − 12 gauge for longer lengths). It is recommended to use color-coded wire for easy polarity identification. Speaker wires should be as short as possible, and the left and the right channel wires should be the same length.

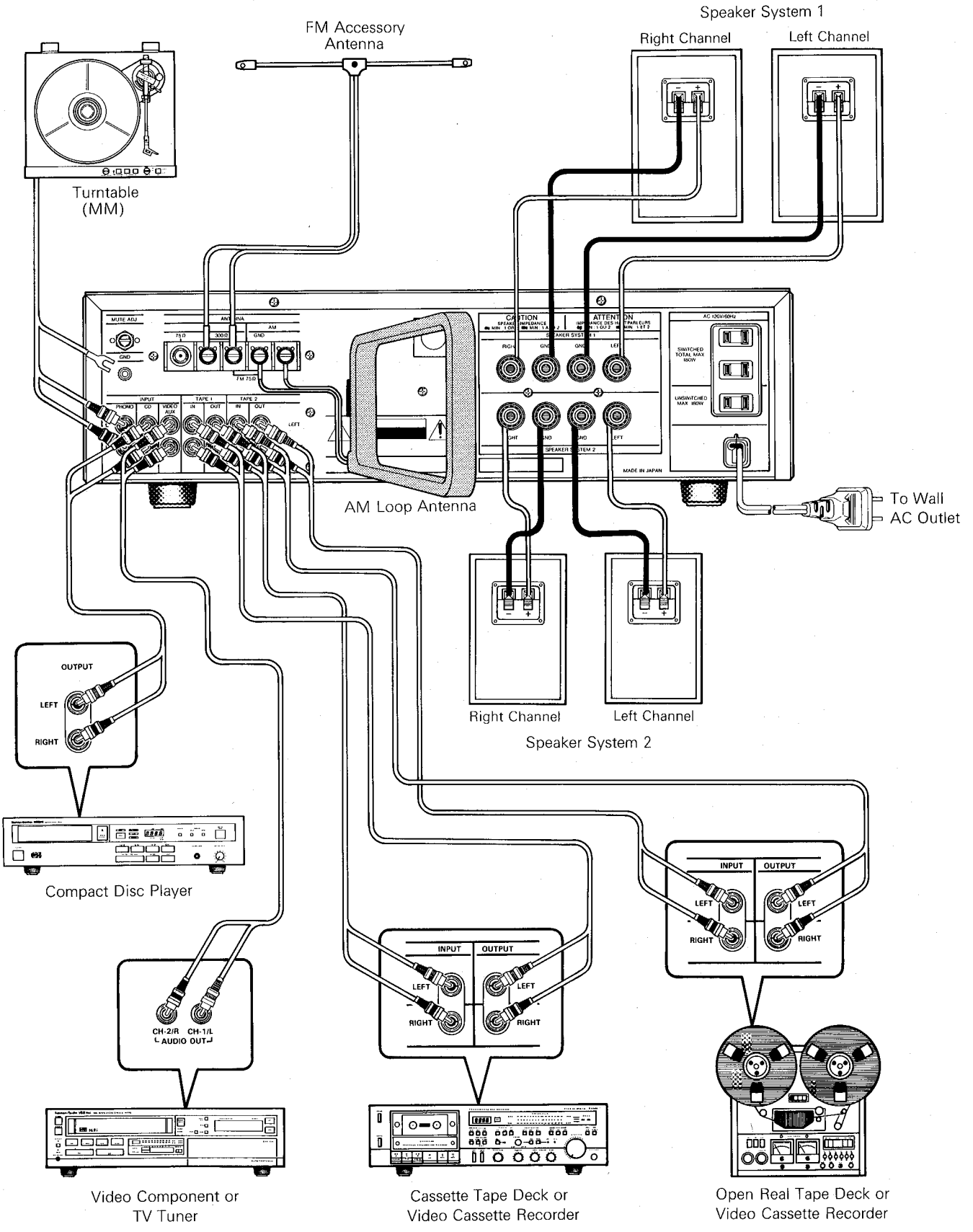


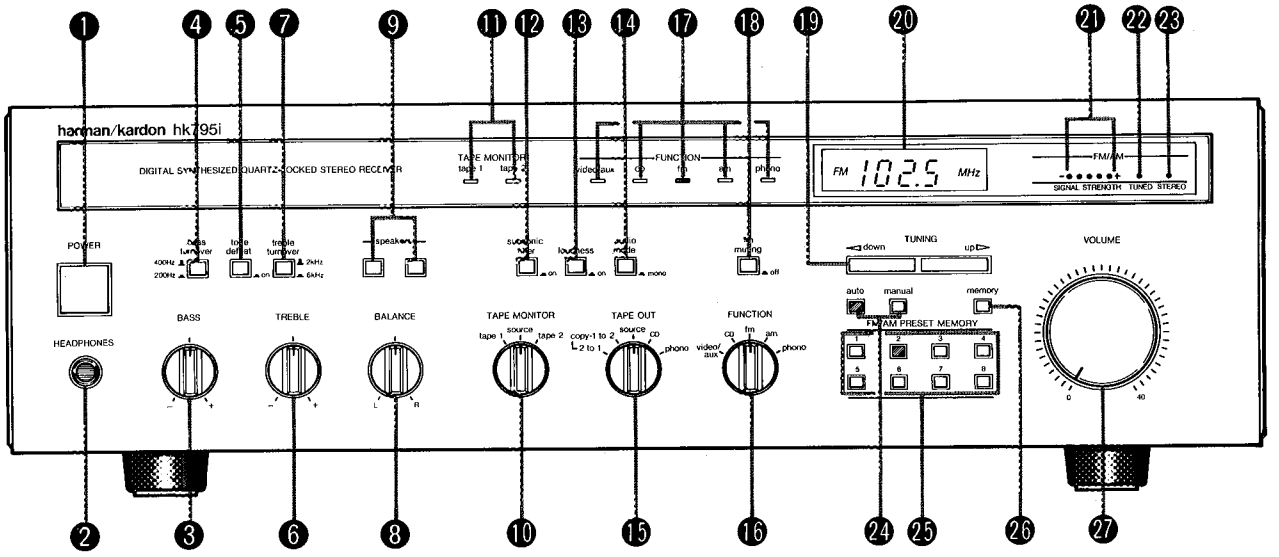
1. Remove about 3/4 inch (20mm) of insulation from the end of each wire and twist the strands of each end.



2. After making sure of the correct channel and polarity, loosen the "SPEAKER SYSTEM" terminal knob and insert the conductor directly into the recess at the upper-right of the terminal. Then tighten the terminal knob, and the end of speaker wire is automatically wound around the terminal.

CAUTION: Two speaker systems can be connected to this unit. The minimum speaker impedance should be 8 Ohm when only one speaker system is connected. When two speaker systems are connected, care should be taken that net impedance does not become less than 8 Ohm.


Speaker System 1
Right Channel
Left Channel
FM Accessory Antenna
Turntable (MM)
AM Loop Antenna
To Wall AC Outlet
Right Channel
Left Channel
Speaker System 2
OUTPUT
LEFT
RIGHT
Compact Disc Player
CH-2/R CH-1/L
AUDIO OUT
INPUT
OUTPUT
LEFT
RIGHT
Video Component or TV Tuner
Cassette Tape Deck or Video Cassette Recorder
Open Real Tape Deck or Video Cassette Recorder



❶ POWER SWITCH (POWER)
Pressing this switch will turn on the power and the front panel will illuminate. Press the switch again to turn the power off.

❷ HEADPHONE JACK (HEADPHONES)
Stereo headphones with a standard 1/4 inch plug can be connected to this jack. When both "speakers" switches are in the OFF position (buttons out), sound can still be obtained via the headphone jack.

❸ BASS CONTROL KNOB (BASS)
This knob controls the low frequency sound level. Turn it clockwise to boost or counterclockwise to reduce the low frequency sound level.

❹ BASS TURNOVER SELECTOR (bass turnover)
This switch is used to select the bass turnover frequency. By pressing this switch to set in the "200Hz" position, the low frequency sound below 200Hz is controlled by the "BASS" control knob. By releasing this switch to set to the "400Hz" position, the low frequency sound below 400Hz is controlled by the "BASS" control knob.

❺ TONE DEFEAT SWITCH (tone defeat)
This switch is used to make the frequency characteristic flat by internally bypassing the tone control circuitry. Set this switch to the OFF position (button out) when you want to use the tone control knobs.

❻ TREBLE CONTROL KNOB (TREBLE)
This knob controls the high frequency sound level. Turn it clockwise to boost or counterclockwise to reduce the high frequency sound level.

❼ TREBLE TURNOVER SELECTOR (treble turnover)
This switch is used to select the treble turnover frequency. By pressing this switch to set in the "6kHz" position, the high frequency sound above 6kHz is controlled by the "TREBLE" control knob. By releasing this switch to set to the "2kHz" position, the high frequency sound above 2kHz is controlled by the "TREBLE" control knob.

❽ BALANCE CONTROL KNOB (BALANCE)
This knob is used to balance the left and the right channels. Usually, it is set at the center. Turn it to the left or right to balance the sound if it seems unbalanced from the speakers or the headphones.

❾ SPEAKER SWITCHES (speakers)
One or two speaker systems can be connected to this unit. Depress the "speakers 1" or "speakers 2" switch corresponding to the system to which you want to listen. To use both speaker systems, depress both switches. Press down the switches once again if the use of the speaker systems are not desired.

❿ TAPE MONITOR SELECTOR (TAPE MONITOR)
This selector is used when listening to a tape or monitoring the sound during recording. The "TAPE MONITOR" indicator lights up in red corresponding to the selector position.

"tape 1": Select this position to play a tape or to monitor the sound during recording on the tape deck connected to the "TAPE 1" jacks.
"source": Select this position to listen to a program source other than a tape.
"tape 2": Select this position to play a tape or to monitor the sound during recording on the tape deck connected to the "TAPE 2" jacks.

NOTE: The "TAPE 1" and/or "TAPE 2" jacks on the rear panel can also be used to record and playback audio signals with a video cassette recorder.

The "VIDEO/AUX INPUT" jacks can be used to play audio signals from a video disc player or video cassette recorder.

⓫ TAPE MONITOR INDICATOR
These indicators illuminate when the "TAPE MONITOR" selector is set in the "tape 1" or "tape 2" position.

⓬ SUBSONIC FILTER SWITCH (subsonic filter)
When playing the turntable, this filter switch is used to reduce subsonic frequencies, which may excessively vibrate the speaker cones or turntable and cause feedback.

⓭ LOUDNESS SWITCH (loudness)
This switch is pressed to create a natural sound quality when listening at a low volume by boosting the low and high frequency ranges.

⓮ AUDIO MODE SWITCH (audio mode)
This switch is used to combine the left and right channels and create a mono signal. Usually it is set in the stereo position (button out). If the FM stereo broadcast station you are listening to is weak and there is a lot of noise, set this switch to "mono". The two channels are combined into a monaural signal, but the noise is reduced for more comfortable listening.

⓯ TAPE OUT SELECTOR (TAPE OUT)
This selector is used for recording from another input on the tape deck(s) connected to the "TAPE 1" and/or "TAPE 2" jacks, for dubbing between two tape decks or for recording another sound source independent of the "FUNCTION" selector.

"phono", "CD": In this position, the phono or CD signal is available at the "TAPE 1 OUT" and "TAPE 2 OUT" jacks regardless of the position of the "FUNCTION" selector. This permits recording the pnono or CD signal on the tape deck(s) connected to "TAPE 1" and/or "TAPE 2" jacks while using the preamplifier and power amplifier sections in another mode (listening to AM, FM, phono, CD, video, or other sources, for example).
"source": Select this position to record the program source selected by the "FUNCTION" selector in either or both of the two tape decks connected to the "TAPE 1" and "TAPE 2" jacks.
"copy-1 to 2": Select this position to duplicate the tape in the deck connected to the "TAPE 1" jacks onto the tape in the deck connected to the "TAPE 2" jacks.
"copy-2 to 1": Select this position to duplicate the tape in the deck connected to the "TAPE 2" jacks onto the tape in the deck connected to the "TAPE 1" jacks.

⓰ FUNCTION SELECTOR (FUNCTION)
This selector is used to select a program source other than a tape.

"phono": Select this position to listen to a disc played on the turntable connected to the "PHONO INPUT" jacks.
"am": Select this position to listen to an AM broadcast.
"fm": Select this position to listen to an FM broadcast.
"CD": Select this position to listen to disc played on the compact disc player connected to the "CD INPUT" jacks.
"video/aux": Select this position to listen to the sound from the video component, the TV tuner or other component connected to the "VIDEO/AUX INPUT" jacks.

⓱ FUNCTION INDICATORS
Each "FUNCTION" indicator illuminates in red corresponding to the setting of the "FUNCTION" selector.

⓲ MUTING SWITCH (fm muting)
This switch is used to tune in a weak station. Press this switch to the "off" position, which deactivates the muting function. This muting feature applies to both FM and AM reception.

The muting level can be controlled by the "MUTE ADJ." control (FM muting level adjusting) on the rear panel. Turn it clockwise to increase or counterclockwise to decrease the muting level.

⓳ TUNING BUTTONS (TUNING)
These buttons are used to tune to a desired broadcast frequency.

"down" button: When this button is pressed, the tuned frequency will decrease to a lower frequency.
"up" button: When this button is pressed, the tuned frequency will increase to a higher frequency.

By setting the frequency step selectors on the bottom panel, tuning can be performed by steps of either 50kHz or 100kHz for FM, 9kHz or 10kHz for AM.

⓴ STATION DISPLAY
This digital display indicates the band (AM or FM) and frequency of the tuned station.

㉑ SIGNAL STRENGTH INDICATOR
The relative strength of the signal being received is displayed by this indicator. Tune and adjust the antenna position for the highest possible indication.

㉒ TUNED INDICATOR
This indicator turns on when a broadcast frequency is correctly tuned in. It may not light up for a weak station, even when it is correctly tuned.

㉓ FM STEREO INDICATOR
This indicator is illuminated when an FM stereo broadcast is received.

㉔ TUNING MODE SELECTOR (auto and manual)
Either an automatic or manual tuning mode can be selected. When the "auto" switch is pressed, it will illuminate in green and the unit will scan up or down to the next station when the "up" or "down" TUNING button is pressed. When the "manual" switch is pressed, it will illuminate in green and tuning can be made manually in small steps by pressing the "up" or "down" TUNING button.

㉕ PRESET MEMORY BUTTONS (FM/AM PRESET MEMORY)
Press any one of the eight "FM/AM PRESET MEMORY" buttons while the "memory" switch is illuminated in green, and the frequency indicated by the STATION DISPLAY is memorized by that "FM/AM PRESET MEMORY" button. Each position can memorize one frequency in both the FM and AM bands, for a total capability of sixteen stations being preset in the memory. Once a station frequency is memorized, it can be recalled any time the same "FM/AM PRESET MEMORY" button is pressed. When the "FM/AM PRESET MEMORY" button is pressed, it illuminates in green, indicating the button is in use.

㉖ MEMORY SWITCH (memory)
This switch is used to enter or change the preset broadcast stations. When this switch is pressed, it will illuminate in green for about 12 seconds. This indicates the preset memory standby state.

NOTE: If you do not press an "FM/AM PRESET MEMORY" button while the "memory" switch is illuminated, memory presetting can not be made.

㉗ VOLUME CONTROL KNOB (VOLUME)
This knob controls the sound level. Turning clockwise increases the sound volume, and turning counterclockwise decreases it. Set this knob at a minimum level before turning the power on or changing the sound source to protect the speakers from being damaged by a sudden high level sound.

FM/AM Reception

Automatic Tuning

1. Turn the "VOLUME" control knob to the minimum level and press the "POWER" switch.
2. Press the "speakers 1" switch and/or "speakers 2" switch for the desired speaker system(s).
3. Set the "FUNCTION" selector to the "fm" position for FM reception or the "FUNCTION" selector to the "am" position for AM reception. The "fm" or "am" FUNCTION indicator will light up and the STATION DISPLAY will indicate the FM or AM frequency.
4. Set the "TAPE MONITOR" selector to the "source" position.
5. Press the "auto" switch. It will illuminate in green.
6. Press either the "down" or "up" TUNING button to change the tuning frequency. To select a higher frequency than that indicated by the STATION DISPLAY, press the "up" button. To select a lower frequency, press the "down" button. The frequency changes until a broadcasted signal is tuned in, and the automatic scanning stops at that station. The "SIGNAL STRENGTH" indicator progressively illuminates according to the reception level, and the "TUNED" indicator will illuminate to indicate that the station is tuned in. When receiving an FM stereo broadcast, the "STEREO" indicator will illuminate automatically.
7. If the tuned frequency is not the desired broadcast station, press either the "up" or "down" button to resume automatic scanning. To scan rapidly without stopping at broadcast frequencies, continuously depress the "up" or "down" button When the button is released, the next strong broadcast will automatically be tuned in.
8. In an area with poor signal strength, the muting circuit may eliminate a desired station, and in this case, the "fm muting" switch should be depressed ("off" position).
9. When the desired station is selected, advance the "VOLUME" control knob to a comfortable level and adjust the "BASS" and "TREBLE" control knobs as desired.
10. Activate the "BALANCE" control knob, "bass turnover", "treble turnover", "tone defeat", "loudness" or "audio mode" switch if necessary.

NOTE: When a broadcast is weak, automatic tuning to that frequency may not be possible. In this case, tune manually, as described in the following section.

Manual Tuning

Manual tuning is useful when the desired station is too weak to be picked up in the automatic tuning mode.

1. Turn the "VOLUME" control knob to the minimum level and press the "POWER" switch.
2. Press the "speakers 1" switch and/or "speakers 2" switch for the desired speaker system(s).
3. Set the "FUNCTION" selector to the "fm" position for FM reception or the "FUNCTION" selector to the "am" position for AM reception. The "fm" or "am" FUNCTION indicator will light up and the STATION DISPLAY will indicate the FM or AM frequency.
4. Set the "TAPE MONITOR" selector to the "source" position.
5. Press the "manual" switch. It will illuminate in green.
6. Press the "fm muting" switch to the "off" position, since a signal too weak for automatic tuning is also likely to be below the muting level.
7. Press the "audio mode" switch to the "mono" position, since a signal too weak for automatic tuning is also likely to be too weak for stereo separation.
8. Softly press either the "down" or "up" TUNING button to find the desired broadcasting station. The best tuning is obtained when many segments of the "SIGNAL STRENGTH" indicator light up.
9. When the desired station is selected, advance the "VOLUME" control knob to a comfortable level and adjust the "BASS" and "TREBLE" control knobs as desired.
10. Active the "BALANCE" control knob, "bass turnover", "treble turnover", "tone defeat" or "loudness" switch if necessary.

Preset Memory

This feature enables the selection of one of eight AM and eight FM broadcasts by simply pressing a "FM/AM PRESET MEMORY" button. In order to use this feature, broadcast frequencies must first be entered into the Preset Memory as follows:

1. Tune to the station to be memorized by using Automatic or Manual Tuning.
2. Press the "memory" switch. It will illuminate in green. While this switch is illuminated, press one of the "FM/AM PRESET MEMORY" buttons numbered 1 through 8. The button pressed will illuminate in green and that station will be entered in the preset memory.
3. To cancel a memorized station and memorize a new station at that number, tune to the frequency of the new station and follow step 2 above. The old station is automatically cleared, and the new station is memorized.

NOTE: Since this unit is provided with a memory backup circuit, the memory contents will remain stored for about three weeks when power cord is unplugged from an AC outlet. If the memory contents are cleared (erased), the presetting procedure must be performed again.

When the "memory" switch is pressed, the switch illuminates in green for about 12 seconds. The memory function will only work while the "memory" switch is illuminated.

Last Station Memory Function

This function "remembers" the frequency last received before changing bands (FM/AM).

▶ When changing the band from FM to AM and again to FM, the last received FM station will be tuned in.

This function also "remembers" the frequency of the station last received.

▶ When the power is turned on, the frequency of the station last received is displayed by the STATION DISPLAY, regardless of whether the station is a preset one or not.

Listening to a Record (Disc)

1. Turn the "VOLUME" control knob to the minimum level and press the "POWER" switch.
2. Press the "speakers 1" switch and/or "speakers 2" switch for the desired speaker system(s).
3. Set the "FUNCTION" selector to the "phono" position and the "phono" FUNCTION indicator will light up.
4. Set the "TAPE MONITOR" selector to the "source" position.
5. Activate your turntable and place the stylus on the record (disc).
6. Turn the "VOLUME" control knob clockwise to increase the sound volume to the desired level.
7. If the disc has a large warp, press the "subsonic filter" switch to the "on" position.
8. Adjust the "BASS" and "TREBLE" control knobs to obtain the desired tone.
9. Activate the "BALANCE" control knob, "bass turnover", "treble turnover", "tone defeat", "loudness" or "audio mode" switch if necessary.

NOTE: If you hear a hum at average listening levels, turn the "POWER" switch off and check to see that the phono and the ground connections are secure. Depending on the cartridge type used, less hum may be created without the ground connection.

Listening to a Compact Disc

1. Turn the "VOLUME" control knob to the minimum level and press the "POWER" switch.
2. Press the "speakers 1" switch and/or "speakers 2" switch for the desired speaker system(s).
3. Set the "FUNCTION" selector to the "CD" position and the "CD" FUNCTION indicator will light up.
4. Set the "TAPE MONITOR" selector to the "source" position.
5. Activate the compact disc player and set the player in the play mode.
6. Advance the "VOLUME" control knob to a comfortable level and adjust the "BASS" and "TREBLE" control knobs as desired.
7. Activate the "BALANCE" control knob,"bass turnover", "treble turnover", "tone defeat", "loudness" or "audio mode" switch if necessary.

Listening to the Video/AUX Input Source

To listen to a video component, TV tuner or other auxiliary component:

1. Turn the "VOLUME" control knob to the minimum level and press the "POWER" switch.
2. Press the "speakers 1" switch and/or "speakers 2" switch for the desired speaker system(s).
3. Set the "FUNCTION" selector to the "video/aux" position and the "video/aux" FUNCTION indicator lights up.
4. Set the "TAPE MONITOR" slector to the "source" position.
5. Activate the component connected to the "VIDEO/AUX INPUT" jacks.
6. Advance the "VOLUME" control knob to a comfortable level and adjust the "BASS" and "TREBLE" control knobs as desired.
7. Activate the "BALANCE" control knob, "bass turnover", "treble turnover", "tone defeat", "loudness" or "audio mode" switch if necessary.

Tape Recording

Recording from a program source (FM/AM broadcast, turntable, compact disc player or components connected to the "VIDEO/AUX INPUT" jacks) on a tape deck connected to the "TAPE 1" and/or "TAPE 2" jacks:

1. Turn the "VOLUME" control knob to the minimum level and press the "POWER" switch.
2. Press the "speakers 1" switch and/or "speakers 2" switch for the desired speaker system(s).
3. Select the desired program source with the "FUNCTION" selector. The "FUNCTION" indicator lights up to indicate the program source selected.
4. Set the "TAPE OUT" selector to the "source" position.
5. Set the "TAPE MONITOR" selector to the "source" position.
6. Advance the "VOLUME" control knob to a comfortable level.
7. If the program source mode is monaural, press the "audio mode" switch to the "mono" position according to the mono program source.
8. Start recording by activating the tape deck(s) connected to the "TAPE 1" and/or "TAPE 2" jacks. The source sound can be listened to from the speakers or headphone.
9. To monitor the sound being recorded, set the "TAPE MONITOR" selector to the "tape 1" or "tape 2" position accordng to the tape deck being recorded. The corresponding "tape 1" or "tape 2" TAPE MONITOR indicator lights up, indicating the monitoring state.

NOTE: The tape monitor output signal fed to the tape deck is carried out directly from the program source without being influenced by the volume, balance, bass and treble controls, bass and treble turnovers, tone defeat, subsonic filter and loudness switches of this unit.

Phono or CD sound can be recorded while listening to another program source by selecting the "FUNCTION" selector.

1. Turn the "VOLUME" control knob to the minimum level and press the "POWER" switch.
2. Press the "speakres 1" switch and/or "speakers 2" switch for the desired speaker system(s).
3. Set the "FUNCTION" selector to the "phono" or "CD" position according to the recording source.
4. Set the "TAPE MONITOR" selector to the "source" position.
5. Set the "TAPE OUT" selector to the "phono" or "CD" position corresponding to the "FUNCTION" selector's setting.
6. Activate the turntable or compact disc player and set the play mode.
7. Start recording by activating the tape deck(s) connected to the "TAPE 1" and/or "TAPE 2" jacks. The phono or CD sound can be listened to from the speakers.
8. Select the desired program source with FUNCTION selector. The new sound source will be heard from the speakers.

Tape Playback

1. Turn the "VOLUME" control knob to the minimum level and press the "POWER" switch.
2. Press the "speakers 1" switch and/or "speakers 2" switch for the desired speaker system(s).
3. Set the "TAPE MONITOR" selector to the "tape 1" or "tape 2" position corresponding to the tape deck to be played. The corresponding "tape 1" or "tape 2" TAPE MONITOR indicator lights up.
4. Insert a recorded tape in the tape deck and set the tape deck in the playback mode.
5. Advance the "VOLUME" control knob to a comfortable level and adjust the "BASS" and "TREBLE" control knobs as desired.
6. Activate the "BALANCE" control knob, "bass turnover", "treble turnover", "tone defeat", "loudness" or "audio mode" switch if necessary.

Tape Dubbing

Two tape decks can be connected to this unit and dubbing can be done from either tape deck to the other.

Dubbing from tape deck 1 to tape deck 2

1. Turn the "VOLUME" control knob to the minimum level and press the "POWER" switch.
2. Press the "speakers 1" and/or "speakers 2" switch for the desired speaker system(s).
3. Set the "TAPE OUT" selector to the "copy-1 to 2" position.
4. If the tape to be dubbed is monaural, press the "audio mode" switch to the "mono" position.
5. After setting the tape deck 1 connected to the "TAPE 1" jacks for playback, and the tape deck 2 connected to the "TAPE 2" jacks for recording, dubbing will begin.
6. To monitor the sound being played, set the "TAPE MONITOR" selector to the "tape 1" position. To monitor the sound being recorded, set the "TAPE MONITOR" selector to the "tape 2" position.

Dubbing from tape deck 2 to tape deck 1

1. Set the "TAPE OUT" selector to the "copy-2 to 1" position.
2. Dubbing will begin by setting the tape deck 2 connected to the "TAPE 2" jacks to playback and the tape deck 1 connected to "TAPE 1" jacks to record.

Another program source (phono, AM, FM, CD, video/AUX) can be listened to during dubbing, with no effect on the dubbing quality.

1. Set the "TAPE MONITOR" selector to the "source" position.
2. Select the desired program source with the "FUNCTION" selector.

TROUBLESHOOTING CHECKLIST

Most of the problems consumers have with their high fidelity system are due to incorrect operation. If this unit does not operate as you intended, first check the items in the following checklist. Also check other related components such as the turntable, tape deck, speakers and other electrical equipment you use with this receiver.

Problem	Cause	Remedy
The front panel does not illuminate when the "POWER" switch is pressed.	• The power cord is not plugged in.	• Plug in the power cord securely.
No sound is head.	• The tuned frequency does not carry a broadcast. • The muting function is ON and the signal strength is weak. • The "TAPE MONITOR" selector is in the "tape 1" or "tape 2" position. • The FUNCTION selection was not made properly. • The "speakers 1" and "speakers 2" switches are set to the OFF position. • The speaker wires are disconnected or broken.	• Tune to a broadcasted station. • Press the "fm muting" switch to the "off " position. • Set the "TAPE MONITOR" selector to the "source" position. • Set the "FUNCTION" selector to the proper position for the desired program source. • Press the "speakers 1" or "speakers 2" switch. • Check the speaker wires and connect them correctly.

TROUBLESHOOTING CHECKLIST

Problem	Cause	Remedy
FM sound has a large amount interference. The "STEREO" indicator does not illuminate. The "TUNED" indicator does not illuminate. Sound distorts and/or the volume level becomes low.	• Incorrect connection to the antenna. • Poor location and/or direction of the antenna. • Transmitting station is too far away. • Multi-path distortion is being caused by the mutual interference of broadcast signals received directly from the transmitting station (direct waves) and signals being reflected from nearby buildings or mountains (reflected waves).	• Check the antenna connection wires and connect them correctly. • Try changing the location, height and/or direction of the antenna. • If an indoor antenna is being used, change to an outdoor antenna. • Use a more directional antenna.
A buzzing or hissing noise is produced continuously or intermittently.	• Caused by the "discharge phenomenon" and the "oscillation phenomenon" of nearby electric appliances (such as fluorescent lights, TV, motors, etc.).	• Place this unit further away from these types of electric appliances. • Install noise-filters on the electric appliances.
Broadcasting cannot be preset.	• The "FM/AM PRESET MEMORY" button is not pressed while the "memory" switch is illuminated.	• Press the "FM/AM PRESET MEMORY" button while the "memory" switch is illuminating.
Station selection cannot be made by using the "FM/AM PRESET MEMORY" button.	• The power cord has not been plugged in for three weeks or more, and the memory has been erased.	• Set the preset memory again.
Sound is not heard from the speaker system on one side.	• The connection of a speaker wires are incorrect or incomplete. • The connection wires to other equipment are disconnected. • The "BALANCE" control knob is turned to either the extreme right or the left position.	• Check the speaker wires for disconnection or breaking and reconnect them correctly. • Check the wires for disconnection and connect them correctly. • Set the mark on the "BALANCE" control knob to the center position.
Tone control is not functioning.	• The "tone defeat" switch is in the "on" position.	• Repress the "tone defeat" switch (button out).
When listening to stereo sound, the left and right sounds are reversed.	• The left and right speaker wires are reversed. • The left and right wires connected to other equipment are reversed.	• Check the speaker wires and connect them correctly. • Check the wires to other equipment and connect them correctly.
Sounds are not heard in stereo.	• The "audio mode" switch is in the "mono" position.	• Repress the "audio mode" switch (button out).
When playing the turntable, a low-pitched noise ("hum" or "buzz") is heard.	• The ground wire of the turntable is disconnected. • The connections of the turntable wires are incorrect or incomplete.	• Make the ground wire connection correctly. • Insert the turntable wires into the "PHONO INPUT" jacks of this unit securely.
When increasing the volume level while playing a turntable, an undesireble prolonged sound (howling) is heard.	• "Howling" is created by the speakers and turntable. • Too much low frequency sound is present.	• Place the speakers further away from the turntable. • Place the turntable on a more solid surface. • Decrease the setting of the "BASS" control knob. • Turn off the "loudness" switch. • Turn on the "subsonic filter" switch.
Sound quality is poor.	• Input components have not been set up correctly. • Tone control is not proper.	• Check the antenna, turntable and cartridge, tape deck, etc. and make corrections as needed. • Adjust the "BASS" and/or "TREBLE" control knobs to obtain a desired tone.